

**NEW**



SMARC \*LEC = Low Energy Computer-on-Module

### Features

- Single, dual or quad-core Intel® Atom™ Processor E3800 Series System-on-Chip
- Up to 4 GB DDR3L at 1066/1333 MHz (non-ECC)
- HDMI and LVDS
- GbE, camera interface
- 1x SATA 3Gb/s, 1x USB 3.0, 3x USB 2.0, max. 12x GPIO
- Extreme Rugged™ operating temperature: -40°C to +85°C

### Specifications

#### Core System

CPU	Intel® Atom™ E3800 Series, single, dual or quad-core SoC with integrated graphics Atom™ E3845 (4C/1333), 1.91 GHz, Gfx 542/792 MHz (Turbo), 10 W TDP Atom™ E3826 (2C/1066), 1.46 GHz, Gfx 533/667 MHz (Turbo), 7 W TDP Atom™ E3815 (1C/1066), 1.46 GHz, Gfx 400/- MHz 5 W TDP
Memory	Up to 4 GB DDR3L at 1066/1333 MHz, memory down non-ECC
Embedded BIOS	AMI UEFI with CMOS backup in 8 MB SPI BIOS, Fast Boot support
Cache	512 kB to 2 MB L2 cache
SEMA Board Controller	Supports: Voltage/Current monitoring, Power Sequencing, Logistics and Forensic Information, Flat Panel Control, I <sup>2</sup> C Bus Control, GPIO Control, User Flash, Failsafe BIOS (dual BIOS), Watchdog Timer and Fan Control

#### Video

GPU Feature Support	7th generation Intel® graphics core architecture with four execution units, supports two independent displays 2D and 3D graphics hardware acceleration Support for DirectX 11.1, OGL ES 2.0, OGL 3.2 Video decode HW acceleration for H.264, MPEG2, VC1, VP8 formats Video encode HW acceleration for H.264, MPEG2 formats
LVDS	Single channel 24-bit LVDS from DDI0
HDMI	HDMI 1.4a from DDI1

#### Audio

Chipset	Intel® HD Audio integrated in SOC
Ports	I <sup>2</sup> S and HDA for audio codec on carrier

#### Ethernet

Intel® MAC/PHY Interface	1x Intel® i210IT Ethernet controller 10/100/1000 GbE
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#### I/O Interfaces

PCIe	3x PCIe x1 Gen2
USB	1x USB 3.0 + 3x USB 2.0
SATA	1x SATA 3 Gb/s
MMC	1x MMC interface to carrier
SDIO	1x SDIO (4-bit)
GPIO	12x GPIO, 5x used for camera, 7x available
Camera	CSI 4L/1L
Serial	2x SPI, 4x I <sup>2</sup> C, 1x I <sup>2</sup> S, Power Management, 2x UART

#### Power

Standard Input	3.0 V ~ 5.25 V DC ±5%
Power States	Supports C0-C6, S0, S3, S4, S5

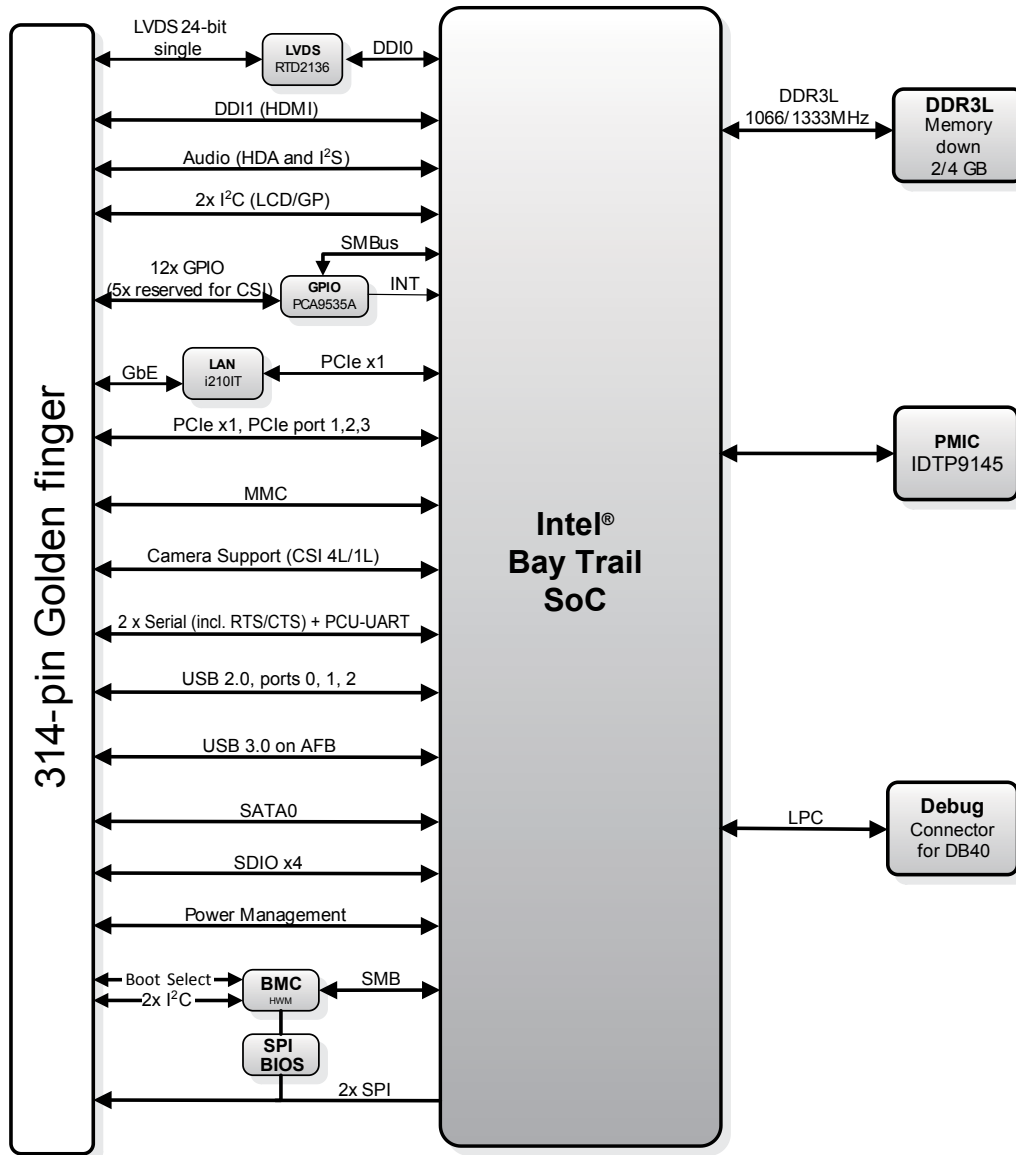
#### Mechanical and Environmental

Form Factor	SMARC Specification v1.0
Dimension	SMARC short size module, 82 mm x 50 mm
Operating Temperature	Standard: 0°C to +60°C Extreme Rugged™: -40°C to +85°C
Humidity	5-90% RH operating, non-condensing 5-95% RH storage (and operating with conformal coating)
Shock and Vibration	IEC 60068-2-64 and IEC-60068-2-27 MIL-STD-202F, Method 213B, Table 213-I, Condition A and Method 214A, Table 214-I, Condition D
HALT	Thermal Stress, Vibration Stress, Thermal Shock and Combined Test

#### Operating Systems

Standard Support	Linux, VxWorks, Windows 7/8, Windows Embedded Compact 7
Extended Support (BSP)	QNX, Android

## Functional Diagram



## Ordering Information

### Modules

Model Number	Description/Configuration
LEC-BTS4-2G-ER	SMARC® Short Module with Intel® Atom™ E3845, quad core, 2 GB DDR3L, Extreme Rugged™ operating temperature: -40°C to +85°C
LEC-BTS2-2G-BR	SMARC® Short Size Module with Intel® Atom™ E3826, dual core, 2 GB DDR3L, Extreme Rugged™ operating temperature: -40°C to +85°C
LEC-BTS1-2G-ER	SMARC® Short Module with Intel® Atom™ E3815, single core, 2 GB DDR3L, Extreme Rugged™ operating temperature: -40°C to +85°C
LEC-BTS-HS	Heatspreader for LEC-BTS

Other configurations by requests (e. g. mobile, desktop variants)